Price discovery in US and Australian stock and options markets

A dissertation submitted for the Degree of Doctor of Philosophy

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Certificate of authorship

I certify that the work in this dissertation has not previously been submitted for a degree and nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the dissertation has been written by me. Any help that I have received in my research work and the preparation of the dissertation itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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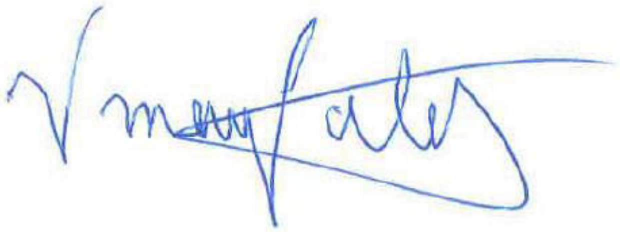

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Abstract

Price discovery is the timely and efficient incorporation of new information into transaction prices. In the microstructure literature price discovery has been empirically examined in three broad contexts: where price discovery occurs, how it occurs, and the informational efficiency of prices. This dissertation contributes to the literature by examining these three avenues of price discovery in the US and Australian stock and options markets in separate essays. The first essay examines whether price discovery in the US occurs primarily in stock or options markets. We use new empirical measures of price discovery and find that price discovery in the options market is approximately one third relative to the stock market. Our findings are that the options share of price discovery is between two and six times greater than has been documented in prior studies, and suggests that the options market is an important venue for informed trading, consistent with early theoretical predictions. In particular, we find that informed traders are attracted to the leverage inherent in options contracts. Our findings increase our understanding of the insider trading characteristics required to make more efficient use of regulatory resources to combat insider trading and reduce negative effects on financial markets, for example, reduced liquidity. In addition, our findings have practical implications for both option and stock market makers in managing bid ask spreads.

The second essay examines how price discovery occurs, and investigates the informational efficiency of large price changes in the Australian stock market. We find that large price changes driven by public information are permanent which is consistent with the semi-strong efficient markets hypothesis. Our findings have implications for US continuous disclosure regulation, in which similar large price changes subsequently underreact. We attribute our findings to the unique Australian information environment which reduces investor distraction which can occur due to information revelation from a number of different sources. In addition, we find that large price changes driven by private information are permanent which is consistent with the imputation of private information into fundamental value. We also find that it would be difficult to consistently profit from the overreaction in returns following large price changes driven by liquidity trading.

The third essay examines price discovery resulting from US divestiture announcements. We use both option and stock prices to disentangle the different sources of value created from divestitures, often aggregated in prior studies, into synergy gains, new information revealed about the stand-alone value of involved firms, and probability of deal success. We find that divestitures create positive synergy gains for both parties, consistent with acquirers purchasing positive synergies and sellers divesting negative synergies. The divestiture announcement reveals favorable new information about the seller's stand-alone value consistent with the undervaluation of its assets, and unfavorable new information about the acquirer's stand-alone value consistent with the friendly nature of divestiture deals. In contrast to using abnormal returns, we find that divestitures create value for the shareholders

of both acquiring and selling firms. Our findings will be of interest to both managers and shareholders.

Keywords: price discovery, stock, option, informed trading, large price changes, return predictability, value, wealth, divestitures

JEL classifications: G12, G14

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List of Figures and Tables